



Know your snow

For most kids, a snow day can be the most fun winter has to offer. We get to stay home, and build snowmen and snow forts, but what is the science behind snow?

It's all about energy! Snow storms get their energy when two air masses of different temperatures and moisture levels meet. Winter storms are born when cold dry air moves under warm moist air causing ice crystals to form.

Snowflakes are made of ice crystals. Each snowflake is six-sided and made of as many as 200 ice crystals. The ice crystals form around tiny bits of dirt that has been carried up into the atmosphere by the wind. A snowflake is kept from falling by winds called updrafts which lift the snowflake higher in the cloud. As the snow crystals grow, they become heavier, and eventually fall toward the ground.

One thing you may have heard is that each snowflake is unique. It is next to impossible that two snowflakes are alike. The crystals grow in different patterns depending on the changing temperature and humidity within the cloud. Each snowflake also builds up differently as crystals join together on the flakes as they fall to the ground. Next time it snows, catch a flake on your mitten and take a closer look.

Try this at home!

Objective: Examine why snowflakes stay in clouds

Materials:

- Hair dryer (shop-vac, or leaf blower will also work)
- two ping-pong balls
- tennis ball

Instructions:

1. Aim a hair dryer straight up and place the ping-pong ball in the air stream.

2. Observe what happens to the ball in the updraft.
3. Gently tip the hair dryer so the wind doesn't point directly upward. What happens?
4. With the hair dryer pointing directly upward, add a second pingpong ball.
5. Finally, repeat the experiment using a tennis ball to simulate a large snowflake. Notice that larger ball is so heavy the updraft is not strong enough to keep it in the air.
6. Learn more about cool 'snow' innovations such as the B-7 snowmobile, sleds, and icebreakers at the Canada Science and Technology Museum.

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